Space Weather Forecast

Issued on Wednesday, 27 April 2022 at 01:29 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Moderate-class flares (R1/R2 Radio Blackouts) likely, with a slight chance of Strong flares (R3 Radio Blackouts).

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity has been Low, with just Common-class flares observed. There are eight sunspot regions on the visible disc, with the two most significant of these in the northwest quadrant. Although these have simplified slightly, they still represent the majority of the flare risk. The remaining six regions are all considered to be simple and benign, with three regions in the northern hemisphere and three in the southeastern quadrant. No Earth-directed CMEs have been observed in available imagery

Solar Wind / Geomagnetic Activity: The solar wind has been just slightly elevated, but is falling towards ambient levels, as a solar fast wind eases. Overall magnetic field strength has been weak, with the north-south component of the solar wind also varying weakly. Geomagnetic activity was Quiet (Kp 1-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Solar activity is expected to be Low, with a risk of Moderate activity and a very slight risk of High activity.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are currently forecast. Solar winds are expected to be around or close to ambient levels through 27 April and much of 28 April. Speeds are then forecast to reach elevated levels later on 28 April due to the onset of a fast solar wind. Geomagnetic activity is forecast to be mainly Quiet on 27 and 28 April, but could reach Active to G1/Minor storms on 28 April and into 29 April due to the expected onset of the fast wind. Unsettled intervals, with a risk of Active are then likely on 29 and 30 April.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is most likely to remain at background levels with no solar radiation storms occurring. However, there is a slight chance of solar radiation storms, as the complex sunspot regions in the northwest of the visible disc are now in a position where any energetic particles that may be released during larger flares could reach Earth.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	20	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	10	10	10	10

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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